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Domains and magnetic reversals in CoCr

Lodder, J. Wind, D. Dorssen, G. Popma, Th. Hubert, A.
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This paper appears in: **Magnetics, IEEE Transactions on**
On page(s): 214- 216
Volume: 23, Issue: 1, Jan 1987
ISSN: 0018-9464

Abstract:
Magnetron sputtered CoCr layers with various thicknesses, coercivities and other magnetic properties have been studied by a digital enhanced magneto-optical Kerr microscope. The slope (T) at [dM/dH]M=? is determined from the perpendicular hysteresis loop. Together with K1these values have been used for calculation of the characteristic stripe domain properties. The observed domain densities have been compared with the calculated densities based on a continuous or particular behaviour of CoCr. The relation between typical fields (like the nucleation field and surface coercivity), the observed domain configuration and the shoulder of the hysteresis loop are given. On the basis of the domain structure (from stripe to cluster-like) we conclude that the samples can be classified in low, medium and high coercive layers.

Index Terms:
Magnetic domains Magnetic stripe domains Magnetization reversal Magnetooptic Kerr effect Microscopy Perpendicular magnetic recording

Co/Pd and Co/Pt multilayers with indium tin oxide seed layers and NiFe soft underlayers for perpendicular magnetic recording media

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Dept. of Electr. & Comput. Eng., Minnesota Univ., Minneapolis, MN;

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On page(s): 1577-1579
Volume: 37, Issue: 4, Jul 2001
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CODEN: IEMGAQ
INSPEC Accession Number: 7065330

Abstract:
Co/Pd and Co/Pt multilayers have been fabricated on ultra-thin (2 nm) indium tin oxide (ITO) seed layers with soft underlayer for perpendicular magnetic recording. The coercivity of the Co/Pd multilayers was increased from 5.1 kOe to 6.3 kOe by increasing the thickness of the initial Pd layer from 1 nm to 2 nm. Hysteresis loops with an almost perfect remanent squareness, high nucleation field, and more sheared sides were obtained. TEM analysis shows that the films have well-segregated columnar structures which help to reduce exchange coupling and increase coercivity. Spin-stand testing shows that the Co/Pd multilayers have a D50 about 157 kfci without differentiating the output signals. Co/Pt multilayers with ITO seed layers deposited in 40 mTorr of Kr give a coercivity of 6.9 kOe and a D50 about 290 kfci when the output signal is differentiated

Index Terms:
cobalt coercive force exchange interactions (electron) iron alloys magnetic hysteresis magnetic multilayers metallic superlattices nickel alloys palladium perpendicular magnetic recording platinum remanence transmission electron microscopy Co Co/Pd multilayers Co/Pt multilayers ITO ITO seed layers InSnO NiFe NiFe soft underlayers Pd Pt TEM coercivity exchange coupling high nucleation field hysteresis loops perpendicular magnetic recording media remanent squareness sheared sides spin-stand testing well-segregated columnar structures

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5, W. Peng, O. Keitel, R. H. Victora, E. Koparal, J. H. Judy, "Co/Pt superlattices with ultra-thin Ta seed layer on NiFe underlayer for double-layer perpendicular magnetic recording media", *IEEE Trans. Magn.*, to be published.
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Co/Pd and Co/Pt multilayers with indium tin oxide seed layers and NiFe soft underlayers for perpendicular magnetic recording media

Wenbin Peng Victora, R.H. Judy, J.H.
Dept. of Electr. & Comput. Eng., Minnesota Univ., Minneapolis, MN;

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